Musculocutaneous manifestations of scurvy
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DESCRIPTION
A man in his early 20s presented with a 6-month history of worsening left leg pain, weakness, swelling and stiffness which limited mobility. He had generalised anxiety disorder and food allergies. The examination demonstrated left leg oedema with ecchymosis of the thigh and ankle and diffuse lower extremity petechial rash (figure 1A–C).

Evaluation did not support the initial differential diagnoses of coagulopathy, myositis or deep venous thrombosis: haemoglobin 81 g/L (134–170 g/L); platelet count, 277×10⁹/L (150–450×10⁹/L); vitamin B₁₂, 247 pg/mL (200–1000 pg/dL); ferritin, 115.8 ng/mL (15–400 ng/mL); International normalised ration (INR) 1.1; creatine kinase 55 U/L (22–198 U/L) and a lower extremity venous Doppler negative for deep vein thrombosis.

MRI of the left thigh (figure 2) revealed diffuse intramuscular and intermuscular oedema, which can be seen with muscle strain, myositis or developing muscle infarcts.

Following admission, he reported eating few fruits or vegetables due to fear of provoking an allergic reaction. Vitamin C deficiency (scurvy) was suspected and supported by vitamin C level <5 mCmol/L (23–114 mCmol/L). Vitamin C deficiency (scurvy) results from decreased vitamin C intake or impaired absorption. While rare, adult populations at risk include those with restricted diets, for example, those with alcohol use disorder, isolated or institutionalised patients, those with mental illnesses, those adhering to restrictive diets, and individuals with multiple allergies to fruits and vegetables. Signs and symptoms appear within 3 months following vitamin C deprivation, when stores fall below 300 mg. Vitamin C contributes to the maintenance of soft tissues through its role in procollagen synthesis, maintenance of intercellular connective tissue and stabilisation of the collagen triple helix. Accordingly, deficiencies impact connective and soft tissues; thus, scurvy presents with musculoskeletal manifestations in 80% of cases.

Figure 1 (A) Lower extremity oedema with arrows showing rash from perifollicular haemorrhages. (B) Arrows showing perifollicular haemorrhages with corkscrew hairs on lower extremity. (C) Arrow showing ecchymosis at the ankle.

Figure 2 Axial MR modified inversion recovery image of the mid left thigh delineates the intramuscular oedema (open arrow), primarily in the adductor magnus muscle, intermuscular fascial plane oedema (thin arrow) and reticular subcutaneous oedema (dashed arrow).
symptoms include fatigue, malaise, arthralgias and myalgias. Skin findings include follicular hyperkeratosis, dryness, poor wound healing, hair shaft abnormalities, gingival swelling and haemorrhage. Bleeding tendencies manifest as perifollicular haemorrhages and painful haemarthrosis and muscular haematomas. Anaemia results both from bleeding and from decreased iron absorption.

Imaging signs of scurvy in children primarily involve the bones, though the muscles and connective tissues are more commonly involved in skeletally mature patients. Findings in adults (best seen on MRI) include intramuscular and fascial plane oedema from perivascular oedema and haemorrhage. These are non-specific and lead to a differential diagnosis of infection, myositis and myonecrosis. In patients with poor nutrition, scurvy should be considered when there is imaging evidence of diffuse soft tissue oedema, particularly in the lower extremities.

Scurvy is diagnosed clinically, and ascorbic acid should be initiated in the setting of a consistent history and exam. A low vitamin C level supports the diagnosis but can be normal despite deficiency. With ascorbic acid replacement, symptoms recede in a few days and signs improve in a few weeks, confirming the diagnosis.

This patient developed scurvy secondary to a restricted diet from anxiety related to food allergies. Signs and symptoms resolved within days of initiating oral ascorbic acid 1000 mg daily. Follow-up for anxiety was continued at discharge.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

REFERENCES

Learning points
► Scurvy is a clinical diagnosis and should be considered in at-risk patients who present with connective and soft tissue abnormalities.
► It is important to recognise the signs and symptoms of scurvy early on to avoid the damaging effects of prolonged vitamin C deficiency.
► Obtaining a detailed nutritional and social history is essential to determining the aetiology of vitamin C deficiency.